

Army and Industry Supply Improved Tactical Headsets to Troops in Iraq

Stephen Larsen

The Improved Tactical Headset (ITH) is designed to protect Soldiers' hearing and to allow them to communicate in the high-noise environment of M1114 up-armored Humvees and other light tactical vehicles (LTVs) being used by the Army in Iraq.

The ITH (inset) protects Soldiers' hearing and allows them to communicate in the high-noise environment of the M1114 up-armored Humvees and other LTVs being used by the Army in Iraq. (Photo courtesy of Bose Corp.)



MAJ Ron Claiborne, Assistant Product Manager Vehicular Intercommunication Systems (APM VIS), receives e-mails or phone calls almost every day from Soldiers requesting more ITHs. The VIS Office is part of Program Management Office Defense Communications and Army Transmission Systems (PM DCATS). According to Claiborne, the Soldiers are asking for headsets to use in convoys in Iraq.

The Army is struggling to acquire sufficient quantities of the ITHs, which are being manufactured by Bose Corp. under a subcontract with Northrop Grumman Corp. The challenge is that the ITH is a revolutionary new design that is being rushed into production to satisfy the Army's needs in Iraq.

"The Army had not planned on needing the new headsets until late 2005," said Claiborne. "But we don't have the luxury of waiting for our original planned production date. We have Soldiers in Iraq who need these headsets now, so Bose is working with us to produce ITHs on an accelerated production and delivery schedule. They've even added a second shift at Northrop Grumman."

Claiborne said there are "around 2,000" ITHs fielded — all in Iraq — and that Bose is currently able to produce from 125 to 400 ITHs a week.

"Our goal is to get production and fielding up to between 500 and 700 ITHs per week by early 2005," said Claiborne. "Then, after we satisfy all requirements for M1114 Humvee headsets in Iraq, we hope to field them to the rest of the Army beginning in July 2005."

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Why is there such a clamor for the ITH? Claiborne points out its features. Designed to fit under the standard U.S. Army Personnel Armor System Ground Troops helmet and the newer Advanced Combat Helmet, the ITH provides hearing protection through both active and passive noise-reduction technologies and enables Soldiers to communicate in the high-noise environment — up to 95-plus decibels (dB) — typical of the M1114 up-armored Humvee.

"The ITH is based on the same active noise-reduction technology Bose uses in its consumer headsets," said Claiborne.

He added that Soldiers can wear the ITH for extremely long periods

without discomfort because of the reduced clamping force on users' ears and its light weight of about 16 ounces. Additionally, Bose has a special patent on ear cushion material, which further increases comfort.

Feedback From Soldiers in Iraq

Claiborne said that the ITH will be replacing nearly 15,000 "emergency-issue" Interim Headsets (IHs) and older models currently in use. The 1st Cavalry Division Soldiers deployed to Iraq have had mixed feelings about the emergency-issue IH.

"I don't like the emergency-issue IH because it's uncomfortable under the helmet," said SFC Jamie Favreau, "and it's only over the left ear, so I can't listen to the other radio."

"With the wires dangling, you can't get it off quickly enough to dismount," said 2LT Guy Malatino. "We need something you can just pop off to dismount."

"It's too bulky under the Kevlar helmet," said 1LT John Shaeffer. SSG Dawn Hodges agreed, but added, "The two times we did use it, it worked well."

SGT John Blair gave the IH high marks. "I love it," said Blair. "We used it once and we were sold on it. In an after action report the lieutenant asked what the troops thought about it, and they said 'Yeah!' The first time Soldiers use it, that's what they want. Humvees don't muffle very well, the armor holds the noise inside and there's noise from weapons, but we can communicate clearly with the headset."

Blair told how the headset allowed his unit to maintain communications when their convoy was ambushed. "The second time we were on a convoy, coming back from Taji, we were ambushed from above and behind with armor piercing bullets, and we were able to communicate throughout the firefight," said Blair.

Claiborne said that the ITH will go a long way toward solving the IH's shortcomings. "The emergency-issue IH doesn't provide any hearing protection from the noise in the M1114 Humvee," said Claiborne. "The Army's goal is to replace every IH with the new ITH to provide soldiers adequate safety and protective equipment and to reduce hearing-loss medical claims."

Also, the new ITH can be put on or removed quickly without requiring Soldiers to remove their helmets. "This is an absolute requirement for soldiers who might have to quickly dismount from their Humvees for combat or security operations," said Claiborne.

He cautions, though, that whether Soldiers have the IH or the ITH, they must ensure their helmet is adjusted

for a correct fit before putting on the headset. "For either headset to fit properly and provide the most comfort and functionality, the helmet's headband and all of the support straps must be adjusted properly for a correct fit," Cliaborne said.

Claiborne discussed the feedback from MAJ Matt Paige, Project Leader for the M1114 Up-Armored Humvee, who was on temporary duty in Iraq.

"Paige said that every Soldier he spoke to who had the ITH had only positive things to say," said Claiborne. "The Soldiers told him the ITH is very comfortable and does a great job canceling out background noise and allowing them to communicate. One M1114 crew told him they were wearing the ITH when a tank was operating

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nearby. The M1114 driver was able to keep in constant contact with the gunner through the headset and the headset canceled out almost all of the tank's noise. Prior to getting the ITH, the driver or vehicle commander wouldn't have been able to communicate with the gunner in a safe manner because of the tank turbine engine noise levels."

West Point Study

The ITH's active noise reduction technology effectiveness was supported by a study completed in December 2004 by U.S. Military Academy Engineering Psychology

Department Cadets.

Cadets Edward Klein and Jon Wertz, under the leadership of research coordinator MAJ Dan Smith, studied the

effect of noise cancellation on sound localization, comparing use of the IH with the ITH. Their study subjects were 21 undergraduate cadets, ranging in age from 18 to 22 years.

In a sound chamber, Klein and Wertz set up eight speakers in a 5-foot diameter ring, placed at ear level every 45 degrees. They played the sound of 95-dB Humvee noise, and tested each subject's ability to localize the sound of AK-47 gunfire.

Klein said they conducted their study with the "talk-through" feature enabled in the ITH, which allows binaural (stereo) monitoring of ambient noise.

"Because the IH has only one ear cup, Soldiers must use an ear plug in the left ear, which they often don't do in a 'real-world' convoy, both because it is uncomfortable for extended periods and because it effectively mutes hearing in that ear," Klein said.



At the U.S. Military Academy, Cadet Jon Wertz wears the ITH in the sound chamber that he and fellow Cadet Edward Klein used to test the effect of noise cancellation on sound localization, comparing the ITH to the IH. (U.S. Army photo by Stephen Larsen.)



The ITH has been rushed into production to satisfy the Army's numerous requirements in Iraq. (Photo courtesy of Bose Corp.)

"The study supported our hypotheses, which were based on signal detection and sound localization theory," said Wertz, "that the ITH allows Soldiers to better localize the direction of exterior sounds — in this case, AK-47 gunfire — although there is a degree of typical front-rear confusion." He added that they have a statistically significant confidence in their results of greater than 95 percent.

"In practical terms, this means a Soldier wearing the new ITH has a better chance of identifying the direction of incoming sniper fire than a Soldier wearing the older IH," said Claiborne.

Claiborne suggested that the cadets possibly complete further studies. "We've been considering adding an ambient noise amplification, or 'bionic hearing' feature to an ITH variant," he said. "We've also had numerous requests for a wireless version."

Smith, Klein and Wertz are planning more ITH experimentation for the

spring semester. "The bottom line for now," said Smith, "is that the ITH protects Soldiers' hearing, enables intravehicle communication and increases Soldiers' ability to localize sound, such as gunfire."

So how do all the Soldiers and units out there clamoring for the ITH get it for their up-armored Humvees?

"The LTV PM who's fielding Humvees has the bumper and serial numbers of each M1114 that has the IH and will replace it with the ITH as soon as we can get sufficient quantities," said Claiborne.

Claiborne said that some units have just begun getting the ITH as "part of the package" when they receive new up-armored Humvees directly from the fielding location in Iraq. Other units with LTVs other than the M1114 must provide the funds themselves for VIS kits, which include a master control station, two crew stations, mounting hardware, special

connectors and cables and, typically, three headsets per vehicle.

"Resourceful units are planning and budgeting to upgrade their VIS from the older (AN/VIC-1) systems — which do not support the newer headsets or active noise reduction — to the newer (AN/VIC-3) system using 'reset' funds after they redeploy from Iraq or Afghanistan," said Claiborne.

For information about ITH or VIS availability or technical characteristics, contact Claiborne at (732) 532-5415 or Ronald.Claiborne@us.army.mil.

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